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FORTY-FOURTH ANNUAL REPORT

OF THE

BOARD OF DIRECTORS

OF THE

ZOOLOGICAL SOCIETY

OF PHILADELPHIA.

(INCORPORATED MARCH 21st, 1869.)

READ AT THE ANNUAL MEETING OF THE MEMBERS AND LOAN-
HOLDERS OF THE SOCIETY.

APRIL 27th, 1916.

PHILADELPHIA:

PRESS OF ALLEN, LANE & SCOTT,

1211-1213 Clover Street,

1916.

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THE
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1211-1213 Clover Street,
1916.

THE
ZOOLOGICAL SOCIETY OF PHILADELPHIA.
(FAIRMOUNT PARK.)

BOARD OF DIRECTORS:

ELECTED BY THE SOCIETY.

CHARLES B. PENROSE, M. D., <i>President.</i>	WILLIAM D. WINSOR, NORTON DOWNS, M. D., W. B. CADWALADER, M. D., <i>Secretary.</i>
CHARLES M. LEA, SAMUEL G. DIXON, M. D., <i>Vice-President.</i>	ROBERT G. LE CONTE, M. D., HENRY PRATT MCKEAN, CLEMENT B. NEWBOLD, CHARLES S. W. PACKARD, <i>Treasurer.</i>
CHRISTIAN C. FEBIGER, <i>Vice-President.</i>	
THOMAS DEWITT CUYLER, OWEN WISTER, CHARLES PLATT, JR., D. M. BARRINGER,	GEORGE L. HARRISON, JR., ALFRED GRATZ, RICHARD H. HARTE, M. D.

ELECTED BY THE CITY COUNCILS.

JAMES E. LENNON, EDWARD B. GLEASON, M. D.

SUPERINTENDENT OF THE GARDEN.

ROBERT D. CARSON.

ASST. TO THE SUPT.

ARTHUR D. SPENCER.

CLERK.

F. ROBERT GILPIN.

PATHOLOGIST.

HERBERT FOX, M. D.

ASSISTANT PATHOLOGIST.

FRED D. WEIDMAN, M. D.

SOLICITOR.

W. W. MONTGOMERY.

REPORT

OF THE

BOARD OF DIRECTORS.

PHILADELPHIA, April 27th, 1916.

The Board of Directors of the Zoological Society of Philadelphia presents to the members and loanholders its forty-fourth annual report, for the year ending February 29th, 1916.

GENERAL AFFAIRS AND FINANCES.

The number of members at the close of the year was:—

Annual members.....	192
Life members.....	1,008
Honorary members.....	11
Perpetual memberships.....	246
Junior members.....	41
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Total members.. ..	1,498

The following is a report in detail of the admissions and receipts for the year:—

Adults (paying at gates).....	129,104
Children (paying at gates).....	41,226
Members (including life and annual members, loanholders' annual, and complimentary annual tickets)	1,382
Loanholders' single tickets.....	4,794
Free admissions (charitable institutions, donors' tickets, &c.)*.....	7,998
Coupon tickets.....	143
Excursion tickets.....	807
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	185,454

* In addition to these, 250,000 tickets were issued to the Board of Education, for the admission of pupils of the Public Schools.

*Monthly Record of Receipts from Admissions for 1915-1916
with corresponding account for 1914-1915.*

MONTH	1914-1915	1915-1916	COMPARISON
March.....	\$1,130 25	\$1,249 65	Increase \$119 40
April.....	2,750 40	1,893 95	Decrease... 856 45
May.....	4,879 15	3,106 65	Decrease... 1,772 50
June.....	3,209 40	2,856 95	Decrease... 352 45
July.....	4,301 05	3,736 45	Decrease... 564 60
August....	5,213 25	4,336 30	Decrease... 876 95
September..	3,853 25	3,513 55	Decrease... 339 70
October....	2,595 90	3,363 15	Increase.... 767 25
November..	1,857 45	1,749 45	Decrease... 108 00
December..	484 55	821 35	Increase.... 336 80
January....	768 60	993 70	Increase.... 225 10
February...	1,408 90	566 20	Decrease... 842 70
	\$32,452 15	\$28,187 35	Decrease... 4,264 80

The paid receipts from admissions show a decrease when compared to those of the previous year, while the number of free admissions is larger. In addition 250,000 tickets were issued as usual to the Board of Education for the free admission of the pupils of the public schools.

The expenditure for animals has been much less than usual. On account of the European War no important shipments of animals have been received in this country, so that the customary additions to the collection have been unavoidably curtailed, but through the co-operation of the State Game Commissioners of Pennsylvania the Society has been most fortunate in securing by purchase one bull and two cow Elk direct from Wyoming. These animals arrived at an opportune time as the old herd had been depleted.

A male Ocelot, a female Raccoon, a pair of Mearns' Deer, a female Peccary, four Globose Curassows, a male and three females, 2 Mexican Guans "Chachalacas" and four Spiny Comb Lizards were obtained by purchase from Mr. C. E. Brewster, Purchasing Agent for the

Pennsylvania Game Commission in Tampico, Mexico, in December, January and February.

An unusually fine Abyssinian Lion was acquired by purchase with income of the Crosby M. Wright donation.

The ground lying on the East side of the Gardens which was acquired from the Commissioners of Fairmount Park in 1914 is rapidly being gotten in order. There is still, however, considerable grading to be completed before this space will be available. Larger and better enclosures for the exhibition of the different varieties of deer will be erected in this part of the Gardens and the old enclosures which are still in use, extending along the creek to the North of the Monkey House, will then be done away with.

On March 8th, 1915 ground was broken on the East side of the lake for the new bird house. This handsome and up-to-date building is nearly finished and it is expected that the bird collection will be transferred during the early part of the summer and the house formally opened to the public.

Plans are now under consideration for planting appropriate trees and shrubbery and grading of the lawns in the immediate vicinity.

The lake has been greatly improved by considerably increasing the water supply, dredging the bottom and rebuilding the banks.

On December 1st, 1915, Mr. Arthur D. Spencer was appointed by the Board of Directors to the position of assistant to the Superintendent.

The health of the animals in general has been good, although some important losses have occurred during the year.

During the year the customary number of passes were issued admitting the inmates of our local charitable institutions, thus widely extending an educational influence in its most effective form.

It is hoped that our present members and all who receive this report will assist in furthering the interests of the Society by procuring new members.

WILLIAMS B. CADWALADER,
Secretary.

TREASURER'S REPORT.

INCOME AND EXPENDITURES.

For the fiscal year ending February 29th, 1916.

INCOME.

Admission receipts.....	\$28,187 35
Rents at Garden.....	250 00
Interest.....	2,588 62
Sale of guides.....	86 85
Donkey rides.....	1,060 05
Sundry receipts.....	1,498 99
Received from the City of Philadelphia through the Commissioners of Fairmount Park.....	50,000 00

Total income.....	<u>\$83,671 86</u>
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EXPENDITURES.

Salaries.....	\$25,177 09
Office expenses.....	794 67
General expenses.....	43,192 93
Purchase of animals.....	4,306 00
Permanent improvements.....	10,206 72

Total expenditures.....	\$83,677 41
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Excess of expenditures over income.....	5 55
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	<u>\$83,671 86</u>
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C. S. W. PACKARD,

Treasurer.

Audited and found correct, April 19th, 1916.

STOCKTON BATES & SONS.

SUPERINTENDENT'S REPORT.

To the Board of Directors of the Zoological Society of Philadelphia:

GENTLEMEN:—I beg to submit my report for the year ending February 29th, 1916.

Total number of animals exhibited in each class during the year:—

MAMMALS.....	601
BIRDS.....	1,029
REPTILES.....	524
AMPHIBIANS.....	36
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	2,190

The species and sub-species exhibited in the collection for the first time were:—

Scotts's Gray Fox (*Canis cinereo-argenteus scotti* Mearns).

Habitat, Southern California, Arizona and New Mexico.

A male and female, which came from Phoenix, Arizona, were presented on July 29th. This pair is slightly paler than the common species with, perhaps, a sharper muzzle and longer tail and ears.

Pine Marten "American Sable" (*Mustelo americana* Turton).

Hab., Northern North America west to Rocky Mountains.

Two males were acquired by purchase on May 15th from Algonquin National Park, Canada.

Sewellel or Mountain Beaver (*Aplodontia rufa* Rafinesque).

Hab., Cascade Mountains, Northwestern United States.

A pair of these animals were presented on December 7th through the courtesy of Dr. A. K. Fisher, Bureau of Biological Survey, Department of Agriculture, Washington, D. C.

Pennsylvania Wood Rat (*Neotoma pennsylvanica* Stone).

Hab., Mountain region from Southern New York to Northern Alabama.

A single specimen, captured in New York State, was presented on March 5th.

Philippine Spotted Deer or Prince Alfred Deer (*Cervus alfredi* Sclater).

Hab., Islands of Samar and Leyte, east side of center of Philippine group.

On August 5th a male and female of these rare deer were received by purchase. The Philippine Spotted or Prince Alfred Deer is found only in the Philippine islands of Samar and Leyte. It was first described from a male sent to the Zoological Society of London in 1870 by Prince Alfred, the Duke of Edinburgh, for whom it was named, a female was obtained the following year; since then no additional specimens have reached England and the pair shown here are the first to be exhibited in this country. So little is known of this deer that the fully developed antlers of the male have never been described.

Alpine Chough (*Pyrrhocorax pyrrhocorax* Linnæus).

Hab., Mountains of Europe and the Himalayas.

A pair was purchased on June 18th.

Pied Grass Finch (*Amauresthes fringilloides* Lafresnaye).

Hab., Africa.

One presented on June 13th. It is just possible that this species has been exhibited in the collections before although there is no record of it

Wood Lark (*Alauda arborea* Linnæus).

Hab., Europe and Asia.

Two purchased on November 24th.

Groove-billed Ani (*Crotophaga sulcirostris* Swainson).

Hab., Southwestern United States to Northwestern South America.

Two received by purchase on August 17th.

Arctic Horned Owl (*Buteo virginianus arcticus* Swainson).

Hab., Interior of Arctic America from Rocky Mountains east to Hudson Bay.

Two of these birds, which came from Portage-la-Prairie, Manitoba, Canada, which would appear to be the southern limit of their breeding range as they breed north of latitude 51°, were obtained by purchase on July 13th.

Cackling Goose (*Branta candensis minima* Ridgway).

Hab., Pacific coast of North America.

Four purchased, of this the smallest of the sub-species of the Canada goose, on May 25th.

Falcated Duck (*Eunetta falcata* Georgi).

Hab., Eastern Asia and Japan.

A male and female of this beautiful species, only one in its genus and until recently of extreme rarity in collections, were received by purchase on May 7th.

In addition to the foregoing there were many noteworthy additions of species not new to the collection. The following were the most important accessions:—

Four Geoffroy's Marmosets, three males and a female, were presented by Mr. Wilfred Powell, British Consul General of Philadelphia on September 20th.

Two Lions were acquired by purchase, a female on June 12th and a male on January 4th.

Three young American Elk, a male and two females, from the Yellowstone Park were purchased through the Pennsylvania Game Commission on February 12th.

Four Fallow Deer, a pair on September 3rd and October 27th, were purchased from the Essex County Park Commission, Newark, N. J.

Three Hog Deer were received, a single female on August 11th and a pair on October 14th, two female Aoudads, one adult and young, were obtained on August 11th from the National Zoological Park, Washington, D. C.

A male Bactrian Camel was secured by purchase on February 4th.

Three Bennett's Wallabys, a pair and young, were purchased on June 18th.

A pair of Wonga Wonga Pigeons were purchased on December 21st.

A pair of Nicobar Pigeons were secured by purchase on January 27th.

A full list of births during the year is as follows:—

- 1 rhesus macaque, (*Macacus rhesus*), ♂, April 7th.
- 1 hamadryas baboon, (*Papio hamadryas*), ♂, October 20th.
- 2 mongoose lemurs, (*Lemur mongoz*), ♂ and ♀, March 24th and April 3d.
- 2 Maholi galagoes, (*Galago maholi*), April 5th.
- 2 pumas, (*Felis concolor*), ♀s, April 8th.
- 4 jungle cats, (*F. chaus*), 3 ♂s and ♀, May 6th.
- 4 Caffer cats, (*F. caffra*), 2 ♂s and 2 ♀s, May 31st.
- 7 American gray wolves, (*Canis mexicanus*), 4 ♂, ♀, March 28th.
- 2 raccoons, (*Procyon lotor*), ♂ and ♀, April 4th.
- 1 polar bear, (*Ursus maritimus*), November 17th.
- 12 prairie dogs, (*Cynomys ludovicianus*), May 30th.
- 8 coypus, (*Myocaster coypus*), June 25th and November 25th.
- 1 Malayan tapir, (*Tapirus indicus*), ♂, December 7th.
- 3 American bison, (*Bison bison*), 2 ♂s and ♀, June 18th, August 28th and September 13th.
- 1 Indian antelope, (*Antilope cervicapra*), ♂, December 28th.
- 2 Himalayan thar, (*Hemitragus jemlaicus*), ♂ and ♀, June 6th.
- 1 red deer, (*Cervus elaphus*), ♂, July 12th.
- 1 fallow deer, (*C. dama*), ♂, September 13th.
- 1 Barasingha deer, (*C. duvauceli*), ♀, April 7th.
- 1 Eld's deer, (*C. eldi*), ♂, March 4th.
- 3 Japanese sika deer, (*C. sika*), ♂ and 2 ♀s, May 22d, July 12th and August 2d.

- 1 Manchurian sika deer, (*C. s. manchuricus*), ♂, July 13th.
- 2 llamas, (*Lama glama*), ♂ and ♀, December 18th and January 7th.
- 1 dromedary, (*Camelus dromedarius*), ♀, October 22d.
- 1 Bactrian camel, (*C. bactrianus*), ♀, March 9th.
- 5 northern wart hogs, (*Macrocephalus africanus*), 3 ♂s and 2 ♀s, June 10th.
- 1 rufous rat kangaroo, (*Aepyprymnus rufescens*), ♂, December 12th.
- 1 eastern wild turkey, (*Meleagris gallopavo*), ♀, June 4th.
- 2 lesser black-backed gulls, (*Larus fuscus*), June 13th.
- 2 hybrid gulls, lesser black-backed and herring, June 4th.
- 6 common night herons, (*Nycticorax nycticorax naevius*), May 16th and July 29th.
- 3 black swans, (*Cygnus atratus*), March 7th.
- 3 blue geese, (*Anser caerulescens*), July 9th.
- 2 Canada geese, (*Branta canadensis*), May 20th.
- 23 banded water snakes, (*Tropidonotus sipedon fasciatus*), August 26th.
- 9 Fairie's garter snakes, (*Thamnophis proxima*), August 14th.
- 12 red-skinned garter snakes, (*T. sirtalis parietalis*), August 15th.

Of the animals born during the year the Malayan tapir is of interest because of its curious coloration. The young of both the Malayan and South American species resemble one another very closely, the body being marked by a series of creamy white bars or stripes and a number of whitish spots. The adults, however, differ conspicuously from one another in color, the American species being a uniform dull brownish and the Malayan partly colored, the head, forequarters and hind legs being brownish-black while the rest of the trunk from the shoulders backward is white in color. At this writing the young tapir is rapidly losing its striped and spotted

appearance and acquiring the adult coloration or the saddle back appearance of the Malayan species.

The percentage of loss through death has been greater than usual. Among the more important losses were a nylghaie that had been on exhibition for sixteen years and probably died of old age, two lions, a Siberian tiger, a saddle-backed tapir, mountain zebra and white tailed gnu.

Respectfully,

ROBERT D. CARSON,
Superintendent.

ZOOLOGICAL GARDEN, March 1st, 1916.

LIST OF ADDITIONS TO THE MENAGERIE DURING THE YEAR ENDING
FEBRUARY 29TH, 1916.

1915.

- Mar. 1. 1 alligator presented by Master Theodore and Miss Christine Eckfeldt, Philadelphia.
2. 2 cereopsis geese purchased and 2 silver pheasants (♂ ♂) exchanged.
3. 1 common opossum (♂) presented by Dr. John G. Thomas, Newtown Square, Pa.
4. 1 Eld's deer (♂) born in the Garden.
5. 1 Pennsylvania wood rat presented by Owen Clifford, Hudson, New York.
7. 1 common mud turtle presented by H. M. Aitken, Philadelphia.
3 black swans hatched in the Garden.
8. 1 common garter snake and 1 common water snake presented by William Beisel, Philadelphia.
1 alligator presented by L. D. Ziegler, Philadelphia.
9. 1 Bactrian camel (♀) born in the Garden.
1 white-fronted amazon presented by Mrs. C. Wagner, Philadelphia.
11. 2 silver pheasants (♀ ♀) 4 ring-necked pheasants (♀ ♀ ♀ ♀) 3 Reeves' pheasant s (♂ ♀ ♀) 1 Japanese pheasant (♀) 2 golden pheasants (♀ ♀) 2 bronze-winged doves, 2 brown pelicans and 4 summer-winged ducks (♂ ♀ ♀ ♀) purchased.
12. 3 ruddy shieldrakes purchased.
13. 1 painted terrapin presented by William W. Bacon, Jr., Germantown, Phila
15. 1 weeper cebus (♀) presented by Mrs. Wilson Woelpper, Philadelphia.
17. 1 yellow-fronted amazon presented by Mrs. George Brill, Philadelphia.
18. 1 red fox (♂) purchased.
1 red-tailed buzzard presented by S. P. Conrey, Philadelphia.
20. 1 summer duck (♀) purchased.
1 opossum (♂) presented by J. Wilson Carriston, Philadelphia.
21. 2 Western brook frogs presented by William Beisel, Philadelphia.
22. 1 Levallant's amazon presented by Mrs. Elizabeth Schroder, Philadelphia.
24. 1 mongoose lemur (♀) born in the Garden.
3 Western diamond rattlesnakes, 1 copperhead snake, 2 Emory's snakes and 2 whip snakes purchased.
26. 1 alligator, presented by George W. McClane, Philadelphia.
28. 7 American gray wolves (♂ ♂ ♂ ♂ ♀ and ?) born in the Garden.
29. 1 whip snake presented by Quintin R. Hensicker, Schwenksville, Pa.
30. 2 black-headed grosbeaks (♂ ♀) purchased.
31. 1 American wild cat (♂) presented by Dr. Norton Downs, Three Tuns, Pa.
April 1. 1 mongoose lemur (♂) born in the Garden.
4. 2 raccoons (♂ ♀) born in the Garden.
5. 2 Maholi galagos born in the Garden.
7. 1 rhesus macaque (♂) and 1 Barasingha deer (♀) born in the Garden.
8. 2 pumas (♀ ♀) born in the Garden.
10. 1 red fox (♀) presented by Leon I. Pearson, Philadelphia.
12. 1 kinkajou (♂) presented by B. Palm, Steamship "Strubano," Philadelphia.
14. 1 king snake presented by J. Howard Creamer, Vineland, N. J.
16. 1 American glass snake, 2 keeled green snakes, 2 Lindheimer's snakes, 1 yellow-bellied black snake and 2 whip snakes purchased.
17. 1 alligator presented by Mrs. A. Ernst, Philadelphia.
18. 1 alligator, presented by Mrs. Andrew B. F. Smith, Camden, N. J.
23. 1 yellow-cheeked amazon presented by Mrs. Fred. Bender, Philadelphia.
1 alligator presented by Master Alfred R. Allen, Philadelphia.
24. 1 green-cheeked amazon presented by Leroy P. M. Shisler, Philadelphia.
2 spotted terrapin and 1 box tortoise presented by Victor Grillet, Philadelphia.
27. 1 opossum (♀) presented by Mrs. M. W. Pardee, Philadelphia.
1 chicken snake, 2 black snakes, 1 whip snake and 1 hog-nosed snake presented by John Hipp, Philadelphia.
28. 12 prairie dogs purchased.
1 Canada goose (♂) presented by W. D. Winsor, Philadelphia.
29. 2 rheas purchased.
30. 1 alligator presented by Allen Rife, Philadelphia.
1 hog-nosed snake presented by J. Liberty Tadd, Philadelphia.
May 1. 1 alligator presented by Charles J. Bender, Philadelphia.
3. 10 Canada geese presented by Lynford Biddle, Chestnut Hill, Philadelphia.
6. 4 jungle cats (♂ ♂ ♂ ♀) born in the Garden.
7. 1 brush-tailed porcupine, 2 whooper swans, 2 Ross' geese, 2 falcated ducks and 8 demoiselle cranes purchased.
1 striated terrapin presented by Mrs. J. M. Endean, Philadelphia.
9. 1 woodchuck presented by William W. Roth, Philadelphia.
10. 8 black ducks (♂ ♂ ♂ ♂ ♀ ♀ ♀ ♀) purchased.
11. 2 peacocks purchased.
12. 1 spotted cavy (♂) purchased.
13. 1 European jay, 1 European red-winged thrush, 2 bullfinches (♂ ♀) and 1 gray linnet purchased.

- May 14. 1 larger hill mynah and 1 European blackbird purchased.
15. 2 American martens (♂ ♂) 1 pine snake, 1 indigo snake, 3 king snakes, 2 black snakes, 3 whip snakes, 3 chicken snakes, 2 corn snakes, 2 hog-nosed snakes, 3 garter snakes, 2 keeled green snakes, 1 scarlet king snake, 1 red-bellied snake, 3 banded water snakes and 3 brown water snakes purchased.
16. 1 prairie rattlesnake, 3 Say's pine snakes, 2 elegant bull snakes, 3 whip snakes, 3 hog-nosed snakes, 3 milk snakes, 4 yellow-bellied black snakes, 1 red-sided garter snake and 1 Holbrook's water snake purchased.
- 3 common night herons born in the Garden.
17. 2 Western diamond rattlesnakes, 1 Lindheimer's snake, 4 yellow-bellied black snakes, 6 Holbrook's water snakes, 3 striped whip snakes, 3 Fairie's garter snakes, 2 Emory's snakes, 2 indigo snakes, 1 whip snake, 1 Say's pine snake, 2 hog-nosed snakes, 1 spiny comb lizard, 2 American glass snakes, 3 tessellated lizards, 6 common horned lizards, 2 spiny lizards and 5 collared lizards purchased.
19. 1 golden pheasant (♀) presented by Mrs. William H. Horstmann, Philadelphia.
20. 2 Canada geese born in the Garden.
22. 1 Japanese sika deer (♀) born in the Garden.
23. 1 garter snake presented by Charles E. Ritter, Philadelphia.
- 1 king snake presented by A. H. Fisher, Philadelphia.
24. 1 ocelot (♂) presented by Franklin Baker, Philadelphia.
25. 4 cackling geese, 5 pin-tail ducks and 3 European widgeon purchased.
28. 11 young prairie wolves (♂ ♂ ♂ ♂ ♂ ♂ ♂ ♂ ♀ ♀ ♀), presented by W. F. Long, Water Valley, Texas.
29. 1 banded rattlesnake presented by Dr. Henry Norris, Rutherfordton, N. C.
30. 12 prairie dogs born in the Garden.
- June 31. 4 Caffer cats (♂ ♂ ♀ ♀) born in the Garden.
1. 1 American crow presented by Thomas H. Clegg, Philadelphia.
2. 3 lesser snow geese purchased.
3. 5 Western fox squirrels (♂ ♂ ♂ ♀ ♀) purchased.
4. 1 alligator presented by Mrs. O. Schaffhauser, Philadelphia.
- 1 snapping turtle presented by H. R. Roberts, Villa Nova, Pa.
- 1 wild turkey and 2 hybrid gulls born in the Garden.
6. 2 Himalayan thar (♂ ♀) born in the Garden.
9. 1 white-fronted amazon presented by Mrs. Charles Molitz, Philadelphia.
10. 4 red-headed finches, 2 chestnut-eared finches, 4 melodious finches, 2 yellow-rumped seedeaters, 2 yellow sparrows and 2 ultramarine weavers presented by Dr. Norton Downs, Three Tuns, Pa.
- 1 alligator presented by James Martin, Chester, Pa.
- 5 Northern wart hogs (♂ ♂ ♂ ♀ ♀) born in the Garden.
12. 1 lion (♀) and 1 yellow-billed hornbill purchased.
- 1 golden pheasant (♀) presented by Richard Norris, Germantown, Philadelphia.
- 1 alligator presented by Paul F. Maschke, Philadelphia.
13. 1 pied grass finch presented by P. F. Harpel, Philadelphia.
- 2 lesser black-backed gulls born in the Garden.
14. 1 Eastern diamond rattlesnake, 5 water moccasins, 1 elegant bull snake, 1 red-sided garter snake, 2 Say's king snakes, 2 Western sand snakes, and 1 Holbrook's water snake purchased.
- 1 blue-fronted amazon presented by David Weber, Philadelphia.
15. 1 crab-eating fox (♀), 1 nine-banded armadillo ♂, 1 black-backed piping crow and 2 Senegal parrots purchased.
16. 1 milk snake presented by Miss Margaret Shea, Philadelphia.
17. 1 king snake presented by A. H. Fisher, Philadelphia.
- 1 black snake presented by Victor Grillet, Philadelphia.
18. 3 Bennett's wallabys (♂ ♀) and young one in pouch and 2 Alpine choughs purchased.
- 1 American bison (♂) born in the Garden.
19. 1 Salle's amazon presented by Mrs. William L. Sands, Philadelphia.
- 1 pine snake presented by Charles J. Schmidheiser, Philadelphia.
21. 6 red-head ducks and 4 mallards purchased.
22. 1 mountain black snake presented by James H. Murray, Snow Shoe, Pa.
25. 5 coypus born in the Garden.
26. 1 milk snake presented by A. Von Stackelhausen, Philadelphia.
- July 1. 2 gray struthideas purchased.
2. 2 alligators presented by Masters Edward and William Wolfer, Philadelphia.
3. 2 alligators presented by James E. Gaskins, Philadelphia.
8. 1 milk snake presented by Samuel Cowell, Germantown, Philadelphia.
9. 1 opossum (♀) presented by Dr. George J. Schwartz, Philadelphia.
- 1 garter snake presented by Thomas Leonard, Philadelphia.
- 3 blue geese born in the Garden.
12. 1 red deer (♂) and 1 Japanese sika deer (♀) born in the Garden.
13. 1 Manchurian sika deer (♂) born in the Garden.
- 2 Arctic horned owls purchased.
17. 1 alligator presented by Clarence Narvell, Philadelphia.
18. 1 pine snake presented by Alfred Norcross, Sewell, N. J.

- July 21. 2 barn owls purchased.
 22. 1 barn owl presented by the Shot Tower Base Ball Club, Philadelphia.
 23. 1 milk snake presented by Horace DeHaven, Churchtown, Pa.
 25. 1 alligator presented by Charles Petry, Philadelphia.
 27. 1 copperhead, 2 Fairie's garter snakes, 1 yellow-bellied black snake, 2 hog-nosed snakes, 2 Say's king snakes, 1 LeConte's snake, 3 Say's pine snakes and 1 California king snake purchased.
 28. 2 barn owls presented by Mrs. Alice Gorton, Maple Glen, Pa., and Mrs. Oscar Nice, Ambler, Pa.
 29. 2 Scott's gray foxes (♂ ♀) presented by Miss Ethel Perry, Philadelphia.
 30. 3 common night herons born in the Garden.
- Aug. 1 yellow-fronted amazon presented by Mrs. K. E. Love, Lansdowne, Pa.
 2. 1 bullfinch (♂), 1 paradise whydah bird (♂), 1 bishop weaver (♂), 1 banded grass finch, 2 spotted munia finches, 1 red-beaked weaver, 1 chestnut-eared finch, 1 black-bellied weaver, 1 ultramarine weaver, 1 cutthroat finch, 1 blue-bellied finch, 1 common linnet and 1 long-tailed grass finch presented by Mrs. K. G. Halligan, Philadelphia.
 1 Japanese sika deer (♂) born in the Garden.
 5. 2 Philippine spotted deer (♂ ♀) purchased.
 6. 1 hog deer (♂) purchased.
 8. 1 striped water snake presented by Victor Grillet, Philadelphia.
 11. 1 hog deer (♀) 2 aoudads (♀ ♀) 2 Pennant's parakeets and 2 Gila monsters purchased.
 12. 1 banded rattlesnake presented by James H. Murray, Snow Shoe, Pa.
 13. 1 white-fronted amazon presented by William Hoyle, Philadelphia.
 1 gray fox (♀) presented by J. H. Allen, Absecon, N. J.
 14. 9 Fairie's garter snakes born in the Garden.
 15. 12 red-sided garter snakes born in the Garden.
 17. 2 groove-billed anis purchased.
 19. 2 alligators presented by Dr. Frederick S. Baldi, Philadelphia.
 22. 1 great blue heron presented by Sergeant Duffy, 17th Police District, Philadelphia.
 25. 2 Swainson's lorikeets purchased.
 26. 1 American egret presented by Harry Simms, Philadelphia.
 23 banded water snakes born in the Garden.
 28. 1 American bison born in the Garden.
 1 box tortoise presented by Master Walter Keen, Philadelphia.
- Sept. 3. 2 fallow deer (♂ ♀) purchased.
 7. 1 American green lizard presented by George M. MacLean, Philadelphia.
 8. 1 changeable tree toad presented by William Beisel, Philadelphia.
 12. 3 snapping terrapins presented by Cecil C. Hahn, Wilmington, Del.
 13. 1 American bison (♂) and 1 fallow deer (♂) born in the Garden.
 15. 1 banded rattlesnake presented by Dr. Henry Norris, Rutherfordton, N. C.
 20. 4 Geoffroy's marmosets (♂ ♂ ♂ ♀) presented by Wilfred Powell, Esq., British Consul General, Philadelphia.
 23. 2 yellow-throated parakeets presented by Mrs. George Dundas, Philadelphia.
 25. 1 black-handed spider monkey presented by Mrs. Ida Archer, Philadelphia.
 1 pine snake presented by Lawrence A. Burton, Philadelphia.
 29. 1 flicker presented by H. Barr, Philadelphia.
 1 box tortoise presented by James F. Dunlap, Jr., Philadelphia.
 30. 1 alligator presented by R. V. Lee, Philadelphia.
- Oct. 1. 2 Canada lynx (♂ ♂) purchased.
 3. 2 Japanese macaques (♂ ♂) purchased.
 5. 1 alligator presented by William C. Price, Philadelphia.
 6. 4 American green lizards presented by Mrs. W. E. Shackelford, Atlantic City, N. J.
 8. 1 keeled green snake, 4 common garter snakes, 2 harlequin snakes, 4 ground rattlesnakes, 1 corn snake, 3 chicken snakes, 2 king snakes, 2 whip snakes, 1 black snake, 3 hog-nosed snakes, 1 banded water snake and 2 water moccasins purchased.
 9. 1 hooded siskin presented by Miss Christine Cadwalader, Paoli, Pa.
 13. 1 canary bird presented by Thomas Janney, Philadelphia.
 14. 2 hog deer (♂ ♀) purchased.
 16. 1 box tortoise presented by Wiltbank Spencer Miller, Philadelphia.
 20. 1 hamadryas baboon (♂) born in the Garden.
 22. 1 common camel born in the Garden.
 1 black snake presented by A. Kaplon, Harpers Ferry, W. Va.
 23. 1 alligator presented by Mifflin Wheeler, Philadelphia.
 25. 1 alligator presented by H. B. Underwood & Co., Philadelphia.
 26. 1 Muhlenberg's terrapin presented by Samuel E. Draves, Philadelphia.
 27. 2 fallow deer (♂ ♀) purchased.
 28. 1 Sebastopol goose (♂) exchanged.
 29. 1 common coot presented by W. G. Mayne, Philadelphia.

- Nov. 1. 2 DeKay's snakes presented by Charles E. Ritter, Philadelphia.
 2. 2 alligators presented by Joseph J. Stedham, Philadelphia.
 3. 2 alligators presented by Mrs. F. G. Pratt, Elkton, Md.
 4. 1 goldfinch and 1 Carolina dove presented by Horace O. Walton, Philadelphia.
 5. 1 DeKay's snake presented by Charles E. Ritter, Philadelphia.
 6. 1 Canada porcupine presented by E. J. D. Coxe, Philadelphia.
 7. 1 alligator presented by Francis Porter Romberger, Philadelphia.
 8. 1 alligator presented by O. L. Staples, Philadelphia.
 9. 1 polar bear born in the Garden.
 10. 22. 1 ground rattlesnake, 2 banded water snakes, 4 common garter snakes, 4 black snakes, 4 whip snakes, 2 corn snakes, 1 chicken snake, 4 hog-nosed snakes, 4 king snakes and 2 keeled green snakes purchased.
 11. 24. 1 green monkey (♀), 1 bonnet monkey (♂), 1 toque monkey (♀), 1 white-nosed coati (♂), 2 European hedgehogs, 2 modest grass finches, 1 chestnut-breasted finch, 1 red and blue macaw, 1 green-cheeked amazon, 2 wood larks and 2 Derbian screamers purchased.
 12. 25. 1 alligator presented by William Drennan, Philadelphia.
 13. 3 coypus born in the Garden.
 14. 28. 1 Levaillant's amazon presented by Dr. E. C. Palmer, Philadelphia.
 15. 30. 2 globose curassows purchased.
 Dec. 16. 2. 1 black lemur (♀) and 1 mongoose lemur (♀) purchased.
 17. 7. 1 Mearns' deer (♂) and 1 globose curassow (♀) purchased.
 18. 2 sewellels through the courtesy of Dr. A. K. Fisher, Bureau of Biological Survey, Department of Agriculture, Washington, D. C.
 19. 1 alligator presented by H. D. Stewart, Philadelphia.
 20. 1 Malayan tapir (♂) born in the Garden.
 21. 8. 2 Audubon's caracaras presented by William Seville, New York.
 22. 3 western brook frogs presented by William Beisel, Philadelphia.
 23. 10. 1 red-tailed buzzard presented by Levin Brothers, Philadelphia.
 24. 12. 1 rufous rat kangaroo born in the Garden.
 25. 14. 1 Canada lynx (♂) purchased.
 26. 18. 1 llama (♂) born in the Garden.
 27. 21. 1 giant kingfisher, 1 Pennant's parakeet, 2 wonga-wonga pigeons and 3 mandarin ducks purchased.
 28. 22. 4 rosehill parakeets purchased.
 29. 25. 1 common opossum presented by C. B. Breinger, Philadelphia.
 30. 1 red-tailed buzzard presented by Dr. G. E. Wallace, Forked River, N. J.
 31. 28. 2 alligators presented by Elvin Palmer, Reading, Pa.
 32. 1 Indian antelope (♂) born in the Garden.
 33. 29. 1 raccoon and 3 globose curassows (♂ ♀ ♀) purchased.
 34. 30. 4 spiny comb lizards purchased.
 35. 31. 1 least bittern presented by Francis Carmona, Gloucester, N. J.
 1916.
 Jan. 4. 1 lion (♂) purchased.
 5. 1 bald eagle presented by Harry Miller, Millville, N. J.
 6. 1 great horned owl presented by Dr. Henry Norris, Rutherfordton, N. C.
 7. 1 llama (♀) born in the Garden.
 8. 12. 1 red-bellied squirrel presented by John Canallarick, Philadelphia.
 9. 16. 1 bald eagle purchased.
 10. 20. 2 giant kingfishers purchased.
 11. 1 Central American deer (♂) presented by Commander Yates Stirling, U. S. S. Columbia, Philadelphia.
 12. 25. 1 ocelot (♂) and 2 Mexican guans purchased.
 13. 1 Cooper's hawk presented by George Fogerty, Philadelphia.
 14. 27. 2 Nicobar pigeons, 2 crested doves, 5 summer ducks and 1 mandarin duck purchased.
 15. 29. 2 wild cats (♀ ♀) presented by Dr. Norton Downs, Three Tuns, Pa.
 Feb. 16. 3. 1 Mearns' deer (♀) and 1 collared peccary (♀) purchased.
 4. 1 Bactrian camel (♂) purchased.
 5. 7. 1 opossum (♂) presented by Emlen Martin, Philadelphia.
 6. 12. 3 American elk (♂ ♀ ♀) purchased.
 7. 16. 1 brown cebus (♂) presented by Captain Higgins, Camden, N. J.
 8. 18. 1 common deer (♂) purchased.
 9. 20. 1 alligator presented by G. H. Alexander, Philadelphia.

REPORT OF THE LABORATORY OF COMPARATIVE
PATHOLOGY FOR THE YEAR ENDING FEBRUARY 29TH,
1916.

The fiscal year for which the following report is submitted has shown a very high mortality, the highest indeed for all years since the Laboratory was started. This is in part due to one large and one small epidemic, to coincidence and to the maturity or senility of several large mammals. Were the epidemics excluded the mortality of the Garden for this year would be about normal. The deaths among the monkeys and lemurs have experienced a pronounced fall. Hygienic and pathological observations upon the special groups are to be found in Section II of the report and here will be put only a few general remarks upon the more important specimens.

The Siberian tiger succumbed to a very severe general infection probably intestinal in origin. It does not seem that the general meat supply was at fault because at the time of the tiger's death no other acute disease was seen in the Carnivora House. He may have received a bad piece of meat or been infected by visitors. The sloth bear died after an ineffectual attempt to reduce a prolapse of the intestine. The prolapsed part was diseased and probably formed an entry for infection. The lioness died from a peritonitis succeeding a perforation of the uterus, which was the seat of chronic inflammation and a malignant tumor. A young wart hog, born in the Garden, died from injury, probably by slipping and striking its head. The last Tasmanian devil succumbed to several conditions, chiefly a disease of the pancreas and its surrounding structures, after several months' illness. The white-tailed gnu and Himalayan thar are interesting in that they died of chronic Bright's disease of the type commonly associated with dropsy. Both these beasts showed dropsy in situations comparable to the human homologue except in the face and lower segments of the extremities. The

mountain zebra died from a protracted attack of enteritis. The saddle-backed tapir showed an acute inflammation of the intestine; his resistance was lowered by the presence of tuberculosis of the lung. The death of the harnessed antelope was due to an acute infection of the lung, spreading from an abscess around a tuberculous lymphatic gland. The large male lion suffered from several attacks of acute enteritis during his lifetime, and at one time, some years ago, it was thought that he would die. Nevertheless he picked up and his intestinal condition seemed satisfactory, although he never quite regained his plumpness and sleekness. Suddenly in December he was taken with symptoms of acute enteritis, a diagnosis confirmed at autopsy. Evidences of the old trouble were found. The large Bactrian camel succumbed to senility assisted by cirrhosis of the liver. Two penguins died of mould infection involving the lung and air sacs.

Dr. Weidman has still in charge the subject of animal parasitology; the more important work of the year is outlined in the second section, and a note of his contributions will be made below. Dr. Cadwalader assists the Laboratory by investigating the nervous system wherever observations made at postmortem direct attention to this field. Dr. Schumann continues his work upon the female genitalia and his direct study of dystocia.

On May 27th of last year the Philadelphia Pathological Society met in the Museum at the invitation of the Directors. Dr. Penrose made some introductory remarks showing the scope of the work. Several interesting individual specimens were presented by Dr. Weidman and myself and the following papers were read: "Remarks on the Results of the Examination of a Series of Wild Animal Brains," by Dr. W. B. Cadwalader; "Remarks on a Case of Amblyopia in a Young Monkey," by Dr. W. B. Cadwalader and Dr. H. M. Langdon; "Report of an Enzootic of Parasitic Proventricular Worms (*Spiroptera incerta* Smith) in Parrots with Control of Same," by Dr. F. D. Weidman; "A *Sarcoptes* (sp?) Parasitic in Bronchiectatic Cavities of a Monkey (*Macacus rhesus*)," by

Dr. F. D. Weidman; "A Note on the Lesions of the Female Genital Tract in Wild Animals," by Dr. E. A. Schumann; "Pancreatitis in Wild Animals," by Dr. Fox. The papers have been published in the *British Journal of Comparative Pathology and Therapeutics*. A limited number of separates have been ordered by the Society for distribution to interested parties.

The important points brought out in the work from this Laboratory as indicated by the papers read at this meeting are as follows: Dr. Weidman's work on the gastric worms of parrots shows that, although the source and spread of this disease have eluded settlement, eradication can be obtained by diagnosis and hygiene. Dr. Weidman has further shown that while we attach little importance to infections with *Coccidium bigeminum*, yet this parasite may be pathogenic and seems to have been so among our swift foxes. The distribution of the genus *Uncinaria*, or hookworm, is very wide among the zoological orders, as indicated by Dr. Weidman's literary search and personal work at the Laboratory. Dr. Schumann's work has shown that the variety and character of the lesions of the female genitalia follow evolutionary lines. In his own words, "It is axiomatic in medicine that the more highly specialized the organ or tissue, the more varied and complex the lesion in which it may be involved. Therefore, in studying the female genital tract in animals, it should follow that the higher the species in the mammalian cycle, the more complicated and specialized are the female reproductive organs, and in equal ratio do these organs become more and more subject to defects and diseases." Drs. Langdon and Cadwalader's case of amblyopia showed merely a mild calcification of a few of the cortical arteries and edema of the pia. Lesions of the optic nerve tract and center were missing. Dr. Cadwalader shows that apoplexy, cerebral softening, arteriosclerosis and the system diseases of the spinal cord are exceedingly rare in wild animals, probably due to the absence of such causative factors as lues and senility. Nervous system disease in animals is not common, as indicated by the paucity of reports in the literature.

Dr. Weidman has reported the discovery of an arachnoid parasite, *Pneumonyssus foxi*, in the lung of a monkey, in the *Journal of Parasitology*, September, 1915.

The Museum has been enriched during the year by 105 new specimens. The total of exhibitions is 790 including 56 from human sources. To accommodate this addition four new museum stands have been installed. Several new pictures have been hung. Practically all the important lesions of wild animals are to be found in our collection and a descriptive index has been completed.

The high price of potassium permanganate has compelled the adoption of some other method to generate formaldehyde gas. Experiments have been made as to the value of spraying diluted formalin in the strength of 2 pints per 1000 cubic feet of enclosed space. This has proved satisfactory for all but objects wrapped in more than one layer of bagging. For our exhibition houses this will answer very well. The Bird House has recently been fumigated on account of the small epidemic there (see page 29). Experiments upon the use of sulphur dioxide, a good method of killing bugs, demonstrated that the galvanized iron would not resist the sulphurous acid so that method could not be adopted.

The following is a list of the animals dying during the year. The total will be found not to tally with the records upon the table, as some specimens have died from injury and some were decomposed. Moreover, in many instances animals are included in the figures of more than one heading, since lesions of importance may have been found in more than one of the anatomical systems. It is seldom the case that only one of the systems is sufficiently affected to be the only cause of death.

Total animals examined, 387.

Total **MAMMALIA**, 108.

Primates, 12; Lemures, 4; Carnivora, 35; Ungulata, 30; Rodentia, 10; Marsupialia, 14; Insectivora, 2; Edentata, 1.

Total **AVES**, 273.

Passeres, 80; Picariæ, 7; Psittaci, 66; Striges, 11; Anseres, 56; Galli, 16; Columbæ, 6; Accipitres, 16; Gaviæ, 2; Herodiones, 6; Limicolæ, 1; Fulicariæ, 2; Impennes, 2.

Total **REPTILIA**, 6.

Testudinata, 2; Squamata, 3; Crocodilini, 1.

Diseases of the digestive system:

Stomatitis: Passeres, 2; Squamata, 1.

Gastritis: Carnivora, 13; Ungulata, 4; Lemures, 1; Marsupialia, 5; Passeres, 3; Psittaci, 2; Striges, 1; Galli, 1; Struthiones, 1; Crocodilini, 1.

Enteritis: Carnivora, 18; Ungulata, 7; Marsupialia, 8; Rodentia, 1; Passeres, 17; Psittaci, 28; Accipitres, 6; Striges, 6; Galli, 3; Anseres, 7; Columbæ, 2; Picariæ, 2; Struthiones, 2; Fulicariæ, 1; Crocodilini, 1; Testudinata, 1.

Intussusception: Carnivora, 1.

Impaction: Limicolæ, 1; Passeres, 2.

Prolapse: Carnivora, 1; Picariæ, 1.

Liver:

Acute (degenerations, inflammations, &c.): Primates, 2; Carnivora, 7; Ungulata, 7; Marsupialia, 9; Passeres, 9; Psittaci, 18; Galli, 2; Striges, 2; Accipitres, 5; Anseres, 4; Struthiones, 1; Columbæ, 1; Testudinata, 1; Squamata, 2.

Chronic (cirrhoses, &c.): Ungulata, 2; Marsupialia, 2; Psittaci, 1; Anseres, 1; Struthiones, 1.

Pancreas:

Pancreatitis: Carnivora, 4; Ungulata, 4; Marsupialia, 2; Striges, 1; Anseres, 1; Testudinata, 1.

Hemorrhage: Carnivora, 1; Ungulata, 1.

Diseases of the circulatory system:

Myocarditis: Primates, 1; Carnivora, 2; Ungulata, 1; Psittaci, 2; Anseres, 1; Galli, 1.

Arterial disease: Ungulata, 2; Marsupialia, 1; Psittaci, 2; Accipitres, 3; Anseres, 1.

Pericarditis: Marsupialia, 1; Passeres, 1; Picariæ, 1; Psittaci, 1; Accipitres, 1; Galli, 1; Fulicariæ, 1; Squamata, 1.

Vegetative endocarditis: Accipitres, 2; Anseres, 2.

Diseases of the genito-urinary system:

Nephritis:

Acute: Primates, 1; Lemures, 3; Carnivora, 7; Ungulata, 6; Marsupialia, 5; Rodentia, 2; Passeres, 1; Psittaci, 5; Anseres, 2; Accipitres, 1; Columbæ, 1; Striges, 1; Herodiones, 1.

Chronic: Primates, 1; Lemures, 1; Carnivora, 4; Ungulata, 6; Marsupialia, 3; Edentata, 1; Struthiones, 1.

Congenital cystic kidneys: Passeres, 1.

Nephrolithiasis: Edentata, 1.

Eggbound: Galli, 1.

Metritis: Carnivora, 1; Ungulata, 1.

Salpingitis: Ungulata, 1.

Vaginitis: Ungulata, 1.

Dystocia: Rodentia, 1.

Diseases of the respiratory system:

Pneumonia: Marsupialia, 1; Impennes, 1.

Broncho-pneumonia: Primates, 2; Carnivora, 1; Ungulata, 1; Rodentia, 1; Passeres, 2; Psittaci, 1; Accipitres, 1; Herodiones, 1.

Insular pneumonia: Passeres, 1.

Septic pneumonia: Passeres, 1.

Lobular pneumonia: Striges, 1.

Caseous pneumonia: Squamata, 1.

Congestion of lung: Carnivora, 3; Ungulata, 4; Marsupialia, 2; Passeres, 9; Picariæ, 1; Psittaci, 9; Accipitres, 1; Columbæ, 1; Striges, 1; Herodiones, 1; Fulicariæ, 1; Struthiones, 1; Galli, 1.

Bronchitis: Carnivora, 1; Marsupialia, 2; Rodentia, 1; Psittaci, 1.

Infarct: Carnivora, 2.

Abscess: Ungulata, 2; Herodiones, 1.

Rhinitis and sinusitis: Psittaci, 6; Passeres, 2; Picariæ, 1; Anseres, 3; Accipitres, 1; Struthiones, 1.

Diseases of the lymphatic system:

Splenitis: Primates, 3; Carnivora, 4; Ungulata, 7; Marsupialia, 5; Rodentia, 1; Passeres, 5; Psittaci, 18; Accipitres, 4; Columbæ, 1; Striges, 2; Anseres, 4; Fulicariæ, 1; Herodiones, 1.

Lymphadenitis: Primates, 2; Carnivora, 6; Ungulata, 7; Marsupialia, 5.

Focal necroses: Anseres, 1; Passeres, 1; Rodentia, 1.

Infarct: Ungulata, 1.

Diseases of the skeleton:

Arthritis: Carnivora, 1; Galli, 1.

Osteomalacia: Primates, 2; Carnivora, 1; Psittaci, 1; Galli, 1; Columbæ, 1.

Rachitis: Primates, 4; Carnivora, 2.

Diseases of the serous membranes:

Pleuritis: Primates, 2; Marsupialia, 2; Herodiones, 1.

Serositis: Passeres, 5; Psittaci, 9; Galli, 2.

Peritonitis: Carnivora, 2; Ungulata, 2; Passeres, 3; Psittaci, 5; Struthiones, 1.

Infections:

Tuberculosis: Primates, 2; Ungulata, 3; Galli, 2; Accipitres, 2; Columbæ, 1; Anseres, 1; Striges, 1; Struthiones, 1.

Mould infection: Passeres, 5; Psittaci, 10; Anseres, 3; Impennes, 2; Herodiones, 1.

Acute general infections (septicemia, &c.): Psittaci, 7; Passeres, 4.

Entero-hepatitis: Galli, 1.

Coccidiosis: Galli, 1.

Waterfowl epizootic: Anseres, 42.

Miscellaneous:

Tumors: Carnivora, 1; Ungulata, 1; Rodentia, 1; Passeres, 1; Psittaci, 1; Anseres, 1.

Cretin: Carnivora, 5.

Thyroid disease: Carnivora, 6; Marsupialia, 1; Accipitres, 1; Anseres, 1.

Adrenal disease: Carnivora, 1; Ungulata, 1; Marsupialia, 1; Galli, 1.

Hydatid disease: Ungulata, 1.

SECTION II.

TUBERCULIN TEST AND TUBERCULOSIS.

March first of last year found six monkeys still in quarantine left from the previous fiscal year. During the past twelvemonth eleven new monkeys and lemures have been received and thirty old monkeys have been returned for several reasons. In all 41 tests have been carried out and one tuberculous animal detected. There have been only twelve deaths among 81 exhibited specimens, 14.8%, the lowest percentage of total deaths among the primates and lemures in the laboratory records.

YEAR ENDING.	Number exhibited during year.	Total dying.	Number tubercu- lous.	Per cent. of deaths tubercu- lous.	Per cent. of mor- tality from tuber- culosis.
February 28, 1906		77	60	78
February 28, 1907		33	18	55
February 28, 1908		24	3	12.5
February 28, 1909		26	0	0
February 28, 1910		25	3	12.5
February 28, 1911		30	5	16 $\frac{2}{3}$
February 28, 1912 88		34	12*	35*	14
February 28, 1913 94		38	19*	50*	20
February 28, 1914 83		23	0	0	0
February 28, 1915 82		19	5	26	6
February 28, 1916 81		12	2	16 $\frac{2}{3}$	2.4

*See 1912 and 1913 reports for explanation of these high figures.

The tuberculous monkeys, Green monkey 82 and Rhesus Macaque 147, are of little importance in the hygiene of tuberculosis in the collection. The former really should not be charged against our mortality but as it was accepted and injected along with a few others it is included. Its poor condition attracted attention and it was kept widely separated from the others. Upon injection the chart was suspicious so the animal was not passed. It went down hill and was finally killed January 3, 1916 at which time tuberculous pleuritis and splenitis were revealed.

Rhesus Macaque 147 was received July 10, 1911, injected twice during the next three months and finally passed to the bandstand where it remained twelve months. It was then separated because it was droopy, reinjected, passed to the monkey house and then transferred to the bandstand in June 1913. Here it remained until March 1914 when a young one was born; then the two were transferred to the monkey house. The two were in the main exhibition house for a year when the mother was retested and put in an outdoor cage; another test was made in October, 1915. The last two tests were not very satisfactory so the animal was kept by herself. She died of general tuberculosis in February, 1916. During the first three years of her stay in the garden she was exposed to eleven macaques and three baboons but for the past year she has been either alone or with her baby. It does not seem that she contracted the disease from any of the monkeys; more likely it was a visitor infection. Her young one is dead of rickets and failed to show any tuberculosis.

It is gratifying to note that there is a further reduction of tuberculosis among the other animals, during the past year. In 1914 there were thirty scattered cases, in 1915, 16 cases and this year only eleven. It is especially satisfying to know that this disease is practically stamped out among the psittaci, one death having occurred last year and none this year. The list comprises Ungulata, 3; Galli, 2; Accipitres, 2; Columbæ, 1; Anseres, 1; Striges, 1; Struthiones, 1.

TUMORS.

The following tumors are placed on record, without giving histological structure, since no features unusual to these tumors were noted:

3525. Undulated Grass Parrakeet (*Melopsittacus undulatus*), Hypernephroma of adrenal.

3562. Lioness (*Felis leo*), Malignant adenoma of cervix uteri.

3806. Larger Egyptian Gerbille (*Gerbillus pyramidium*), Fibrosarcoma of shoulder muscles.

3815. Red-headed Duck (*Fulligula ferina americana*), Papillary adenoma of kidney.

3834. Nylghaie (*Boselaphus tragocamelus*), Fibroma uteri.

3883. Jungle Babbler (*Crateropus canorus*), Multiple adenoma of kidney.

QUAIL EPIDEMIC OF JANUARY AND FEBRUARY, 1915.

Last year's report contained a detailed account of an epidemic of "quail disease" imported to the garden and destroying all but two of forty-eight new birds. There was isolated from these birds an organism corresponding to the *Bac. scoticus* (*Migula*) believed to be the cause of the disease, according to the observations of Morse. We obtained from Dr. Kalbfus of the Pennsylvania State Game Commission, four perfectly healthy birds for experimentation. A culture of the isolated germ was injected into two of them and mixed with the food of the remaining two. It does not seem profitable to cite the details of the work as the results were entirely negative, no lesions resulting that bore the slightest resemblance to the spontaneous disease. The birds either lived indefinitely or succumbed to wholly foreign conditions. This negative experiment is of course no proof that the organism is not the cause of quail disease, for the methods employed might not be the correct ones to propagate the virus or the germ may have lost its virulence during the laboratory cultural work. However, as some observers have not reported this bacillus in the disease this germ loses something in importance by the negative inoculation experiment.

CRETIN WOLVES.

A healthy Gray Wolf gave birth on March 28, 1915, to seven pups, two of which died from weakness very shortly and were not brought to the laboratory. The remaining five died from 2 months to 7 months later. They are interesting in the fact that they were all cretins, and presented various thyroid alterations. In

the cases here reviewed the changes varied from simple hyperplasia to fetal adenoma. As is customary with cretins there was in most of the pups an imperfect osteogenesis, expressing itself in bowing of the legs and disorderly hyperplasia of the epiphyseal junction. The observation of a hemorrhagic pachymeningitis in two cases, one internal, the other external with craniotabes, is noteworthy. The pituitary body was not pathologically altered. A little subcutaneous oedema was noted in two cases, but it was not of the sticky kind seen in myxœdema.

NOTES.—No. 3584. Young American Gray Wolf died June 11th, 1915, Cretin., hyperplasia of thyroid, acute internal pachymeningitis, hypertrophy of heart, fatty degeneration of myocardium and liver, cloudy swelling of kidney, chronic lymphadenitis, acute catarrhal gastro enteritis, subcutaneous oedema. This animal was dwarfed, head larger than normal, legs heavy and curved, hair thick and dry, skin dry. The subcutaneous tissues are oedematous as are also the mediastinal and retroperitoneal tissues. Cervical tissues are less so. Cervical lymphnodes are large, soft, pale yellow, and homogeneous. The salivary glands are almost dead white. The right thyroid is $3 \times 1.5 \times 1$ inch, soft, homogenous red brown, except for one large blood cyst. The left thyroid is $2 \times 1.5 \times 1$ inch. It is the same as the right but no blood cyst. There are spheroid masses of thyroid or parathyroid tissue at the lower pole of the left thyroid and over the thyroid cartilage. It has the same section surface as the thyroid. Thymus is small, gray yellow, soft, and oedematous. The lungs are distended, slightly congested, oedematous, with a few areas of subpleural emphysema and some hypostatic congestion in dependent parts. The heart is both hypertrophied and dilated but the valves seem to have been competent. The muscle has slight tigroid appearance. The liver is slightly large, soft and friable, deep red brown with yellow mottling. The section surface feels slimy. There are irregularly distributed minute pale areas chiefly affecting the periphery of the lobule. The gall bladder is distended with yellow bile and the pericystic tissues and other tissues at the hilus are oedematous. The spleen is of normal size and soft in consistency. Section surface is mottled red gray; trabeculae seem increased but follicles are not visible. The kidneys are normal in size and have a smooth capsule which strips easily, leaving a smooth brown surface. The section surface shows a wide cortex with wide irregular striae and invisible glomeruli. The mucosa of the stomach is distinctly rugous, swollen, intensely red and opaque. The intestine is similar to the stomach except that the mucosa is more intensely red and more swollen. The lumen contains blood streaked yellow mucus. The retroperitoneal lymphnodes are considerably enlarged, firm, homogenous yellow. The calvarium is normal. The dura at sides and base is very firmly adherent to the skull. The under surface of the dura over middle of left hemisphere shows recent clot and some opacity of the membranes. There is a small area of hemorrhage on the right side. Pia is slightly congested but not opaque. The pituitary body is roughly nodular, oedematous, red and its dural covering is quite firm and opaque. It and the sella turcica seem of proper size. The skeletal bones are shorter and heavier than normal. The costo-chondral junctions are enlarged but not beaded. Section through the ribs shows marrow to be very red and to extend up to the osteochondral line, which is very slightly irregular but not widened. Microscopical section of thyroid shows some hyperplasia in normal arrangement. The colloid where present is firm, solid and closely applied to the cells.

No. 3800. Young American Gray Wolf. Cretinoid, hemorrhagic external pachymeningitis with craniotabes, secondary hyperplasia of thyroid with colloid, chronic lymphatic hyperplasia, chronic interstitial nephritis, chronic enteritis, osteogenesis imperfecta, hemorrhagic bone marrow, concentric hypertrophy of heart with dilation. The animal is short of stature, bowed of leg, heavy of head, with slight irregularity in formation of cranial bones. The bones are apparently well formed and the deformities are rather the result of joint relaxations and some asymetry than of any softening or bone absorption. The neck is large from hypertrophy of the thyroid and cervical lymphglands and rather unusual size of the salivary glands. The right thyroid is $3.5 \times 2 \times 1.5$ cm; the left is $2.5 \times 1.5 \times 1$ cm. Both thyroids are resilient, homogeneous and on section show uniform brown parenchyma and very slight interstitial tissue, no cysts. The thymus is small, firm, triangular, flat, gray yellow. Lungs are slightly uniformly congested but distended and normally crepitant. The heart is large; right ventricle dilated but left ventricle more so; valves are competent. The liver is normal in size, firm, deep red brown and shows normal architecture on section. The gall bladder is distended with brown fluid. The spleen is normal in size and soft. On section it shows mottlings of purple and dark red; follicles and trabeculae are faintly visible. The kidney is normal in size, firm, and has a smooth slightly

EPIZOOTIC AMONG PARROTS.

During September and October, 1915, a small epidemic started in the parrot house and carried off five birds. The principal conditions were rhinitis and sinusitis of the related structures not unlike the lesions seen in human infections of the same regions. Segregation and sacrifice of the infected birds stopped the epidemic in fifteen days. The organism causing this outbreak was of the hemorrhagic septicemia group, but the exact species could not be determined. This finding of itself is interesting but gains in significance in view of the second small epidemic in January and February, 1916. During these two months eight birds succumbed and several more were droopy. This infection was a general one in the body of the bird and suggested fowl septicemia although no bacteria could be isolated from the blood stream. From the organs and local inflammations (*airsacs*) however, a bacterium indistinguishable from the bacillus of roup (Moore) was isolated and this germ varied only in unimportant details from the first mentioned so far as we had data on the latter. The bacterium of the second infection has been worked out and made into a vaccine with the idea of injecting it should the disease break out again. The lesions in these birds are not that of roup or diphtheria nor of infectious leukemia, also associated with the hemorrhagic septicemia group of organisms. It is to be considered as a simple infection with this bacterium and not as conforming with any ordinary recognized specific disease of birds.

tight capsule. Stellate veins are prominent; architecture clear; no apparent increase in connective tissue. The intestinal mucosa is irregular, mottled pink, yellow and brown with furrows and areas of erosion. The lumen is crowded with ascaris and it seems probable that they had something to do with the enteritis. Upon removing the calvarium a marked craniotabes of the under surface is found and with it a deep red and purple staining of the outside of the dura and inner table of skull. These changes are most marked along the longitudinal sinuses at the internal occipital protuberance and along the left parietal region. The dura on the left side is distinctly congested. This is also true of the pia. The brain and its base seem normal. Pituitary body is 5 x 7 x 4 mm, soft and yellowish pink. The joints are well formed; contain a sticky yellow-brown synovial fluid in excess. Lining is normal. Epiphyses are almost entirely free of bone deposit but the cartilaginous rim is normal except in thickness; spongy bone is scant. The marrow is uniformly hemorrhagic. Osteoneogenetic zone is straight but extremely narrow and highly vascular. The changes in the ribs are comparable to the above. Two microscopic sections show secondary colloid goitre in one diffuse in character, in the other nodular. The nodular one is due not to anything inherent in the goitre but to a chronic interstitial fibrosis separating the islands of thyroid tissue. In the nodular growth few of the acini contain colloid while in the diffuse growth most of them contain colloid. From the density of this substance no absorption is going on.

OBSERVATIONS BY DR. E. A. SCHUMANN UPON INTERESTING CONDITIONS FOUND IN THE FEMALE GENITAL TRACT.

3562. Lioness (*Felis, leo*), Malignant adenoma of cervix uteri, chronic hypertrophic and purulent endometritis with perforation, acute peritonitis. The uterus was the seat of nodular thickening. The cervix showed a rounded, nodular, sharply outlined, fibroid mass. The upper part of cervix and middle of body of uterus showed a smooth, flat mucosa. Upper part of body was thickened and nodular and on section showed an irregular thickening of the wall with papillomatous and ulcerated elevations on the mucosa. Cornua much distended and tortuous the right being the seat of firm, nodular irregularities, the left being the seat of soft, cyst-like swellings. On opening the body of the uterus pus escaped from the left side. The right cornu showed great fibroid thickening of the walls while the mucosa was irregular, swollen and hemorrhagic. The left uterine horn presented a series of spherical enlargements 8 x 6 cm., suggestive externally of early pregnancy. On section these nodules were found to consist of thinned out uterine muscle transformed into abscess cavities while the constricted portion between the nodules was of firm indurated tissue. Microscopical section from nodule at cervix shows an irregular glandular growth with sometimes duplicated, sometimes degenerated epithelium, the cells in many places being hyperchromatic. There is no definite arrangement of the glands or cells or appearance of extraglandular nests although in places this latter is simulated. Some slight fibrosis is present. Body of uterus shows chronic hypertrophic endometritis and a chronic metritis without marked fibromatous change. Here and there are points of chronic inflammation deep in mucosa while more superficially infiltration and hemorrhage may be found. The glands are atypical in shape and arrangement because of the inflammation but in only one or two small areas does there seem to be a suggestion of re-

duplication or papilloma formation within the gland. A section of cornu near the perforation shows a milder degree of endometritis, more areas of cellular infiltrate, degeneration and hemorrhage.

For over two years this animal had a discharge from the vagina about every eight weeks; as this occurred regularly after coition it was looked upon as a miscarriage. No blood observed until March discharge and none afterwards. The animal died in May.

3656. Bennett's Wallaby. (*Macropus ruficollis bennetti*). This adult female wallaby furnished a very interesting specimen for our museum. This specimen consists of the entire pelvic portion showing the genitalia and marsupial pouch in which is found a newly extruded fetus. The opening of the marsupial pouch, which is distended, is 7 x 5.5 cm. wide and 14 cm. deep and has the capacity of about a pint. The right posterior nipple is not developed, showing as a papilla on the lining of the pouch. The right anterior nipple has been developed and measures 1 cm. long. The left posterior nipple has the same size and general appearance as the right anterior and the left anterior is the one to which the present young is attached. It is a tubular structure 4 cm. long, with 5 mm. as the average diameter, presenting at the distal end a somewhat bulbous enlargement. The pouch is lined with smooth epithelial walls composed of somewhat thickened skin. The young one is covered with a white smooth skin, entirely hairless. It measures 4 cm. total length, occipito-mental 15 mm., biparietal 8 mm. The mouth is triangular in outline, nostrils well developed; eyes show as black papillæ and covered by membrane. The fore legs are well developed and the nails well formed. The hind legs are short and rudimentary, the nails beginning to be hard. The tail is short and thick. The external genitalia is present as a small tubercle with a passage in the center but the sex is indeterminate. There is a transverse scar evidently the result of decidual attachment.

3810. Mule Deer (*Mazama hemionus*). Chronic metritis of mild degree. The uterus is irregular, elongated,

nodular and on opening shows some mural fibroids and a thick brown mucilaginous material in the lumen.

3824. Hairy-rumped Agouti (*Dasyprocta prymnolopha*). Dystocia. An apparently normal fetus occupies the left uterine horn. The nose has engaged in the pelvis and has been moulded in a curve pointing to the right. The fetus measures—bitemporal 30 mm., cervical coronal 31 mm., length of fetus 17 mm. Pelvic inlet in the fresh state measures 18 mm. transversely and about 17 mm. antero-posteriorly. The umbilical cord is 10 cm. long and appears normal as do the membranes. Placenta presents as a spherical mass of hard dense consistency, 35 mm. in diameter, and with apparently normal placental tissue occupying the lower border of this spherical mass. On section the mass shows areas of alternating soft red tissue separated by communicating trabeculæ of dense white fibrous tissue. This mass is distinctly encapsulated, but the nature of the enclosing membrane is indeterminate. The pelvis in dry state shows evidences of malformation due to trauma. The right ileum is pushed forward and inward carrying the acetabulum a short distance inward and backward. There is a marked thickening about the right acetabulum. At the upper portion of symphysis there is marked bending backward toward the sacrum with thickening of the bone. The last sacral vertebra is sharply bent and ankylosed, forming an angle of 60°. The pelvic measurements in the dry state—at superior strait transverse 24 mm., right oblique 23 mm., left oblique 26 mm., true conjugate 22 mm., outlet 17 mm. between the ischiatic spines. This is obviously a traumatic malformation and forms a relatively contracted pelvis. The delivery of an adult fetus is impossible.

3834. Nylghaie (*Boselaphus tragocamelus*). Chronic vaginitis, fibroma uteri, chronic tuberculous salpingitis. The vulva and lower half of the vagina are covered by a thin coating of yellowish mucus. Mucosa is mottled purple, irregular, in some places being smooth and flat, and in others showing clear cysts with yellowish fluid contents. The upper part of the vagina shows a peduncu-

lated fibroid extending from the cervix. This tumor measures 32 x 20 mm., is attached to the post-cervical wall by a broad pedicle and is of smooth surface. The right uterine wall shows a large fibroid which twists the uterine lumen to the left. The tumor in the right uterine cornu is nodular, measures 11 x 9 x 7 cm., shows many dilated veins coursing over the surface and one section shows a soft central necrotic area. The left uterine cornu shows a small fibroid at the lower end. There is a chronic endometritis present. The outer half of the right tube is the seat of firm nodular swelling, one of which proves to be a purulent salpingitis (tuberculous), the others calcareo-caseous salpingitis. Both ovaries are fibroid and cystic. Microscopical section shows some exfoliation of the epithelium of the vagina. The uterine cornu is thickened and the fibrous tissue is greatly increased. The tube is the seat of purulent salpingitis with an occasional broken down tubercle present. The ovaries show a mild degree of oöphoritis.

DR. WEIDMAN'S REPORT.

WATERFOWL EPIZOOTIC.

There began on August 27th a series of deaths among the waterfowl and in one month there were lost 41 specimens including both ducks and geese. Four additional cases were scattered through the next four months, the last case dying on January 11th, 1916. All of these came from the lake, none being from the adjacent stream for rare waterfowl or from the more distant stream into which the lake drains. The symptoms were most marked and striking. In the early stages the wings drooped, then the legs became weak, followed by inability to raise the head. In the latest cases the voice (ducks) lost its normal character and became hissing. The mind appeared clear for the eyes were bright, feathers unruffled and the bird attempted to escape when approached. Diarrhœa was present, dejecta thin, watery, white, no admixture of mucus.

The autopsy findings were not frank. At most some swelling of the spleen and a little pale thickening of the intestinal wall constituted the picture. Smears from intestine and nasal mucosa showed no protozoa. The blood taken from the living sick ducks showed no parasites or anemic changes in either raw or variously stained preparations. From the spinal cords of three ducks Dr. Fox prepared a 50 per cent. glycerine emulsion which was injected into the cerebral substance and abdomen of domestic ducks with negative results. A variety of different bacterial cultures was obtained from the liver, spleen, blood and congested nasal mucosa of several birds dead with the disease and injected into domestic ducks, but again without reproduction of paralysis.

Histological sections were cut from the important organs of thirteen birds. The kidneys, lungs and pancreas showed no abnormalities. The heart muscle in some cases and also some of the skeletal muscles showed Zenker's hyaline degenerations together with minor hemorrhages and œdema. Several of the proventricles showed low grade inflammatory signs toward the gizzard. The intestines regularly showed lymphatic infiltrations of the villi most marked toward the tips, but without congestion. The lumen showed no parasites, bacterial or protozoal. Liver showed, in almost every case, pigmentation by hemosiderin at times as heavy as that seen in progressive pernicious anemia. The finer bile ducts here showed peripheral round cell infiltrate, which was not continued into the major ducts, as determined by serial sections. Parenchymal cells were cloudy and swollen. Spleen showed, in early cases polymorphonuclear infiltrate of the follicles, in later cases atrophy of follicular splenocytes and more or less pigment occurred in both stages. The spinal cord and various peripheral nerves showed no inflammation or degeneration as determined by the appropriate special nerve stains.

The above clinical, histological, protozoological and bacteriological examinations having failed to detect the

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cause and the epizootic now being over, its nature becomes a matter of deduction. The only constant features of any importance were the paralysis, the intestinal round cell infiltrate and thickening, the pigmentation of the liver and the degeneration of skeletal muscles. Of the various possibilities, first beri-beri was early considered. This is not possible because the food of the birds was a varied one and furthermore, none of the nerve degenerations of beri-beri were noted. Second, acute bacterial or protozoan infections is unlikely because no constant primary lesions were discovered at autopsy, the numerous cultures failed to reproduce the disease,* and other birds living on the stream draining the lake were not similarly affected. Third, a food poisoning. This is possible first because paralytic symptoms were present such as are seen in vetch and mussel poisoning and, secondly, because the epizootic ceased when the birds were taken from the lake and placed upon the grass. If this be the case, the toxic material produced the paralysis by direct action on the muscle fibers, just as that of typhoid fever does and must also have caused haemolysis as shown by the hepatic pigmentation. The source of this food poisoning is conjectural. Perhaps a dead fish decomposed in the water or there were some algæ with poisonous properties present. The cause of the trouble must be considered undetermined.

TRICHOSOMA HEPATICUM IN PRAIRIE DOG

(*Cynomys Ludovicianus*) 3605.

This has, to the writer, been the most promising parasitic finding of the year. The parasites are round worms of very small size occupying the liver and producing enormous numbers of eggs. In this case the liver was distended to ten times the normal size. This

*NOTE.—It is appreciated that these are not absolute signs, since some infections, such as acute articular rheumatism show no primary foci and do not yield bacterial cultures fulfilling Koch's postulates.

prairie dog showed such anatomical changes (ascites, &c.) as to indicate that this parasite was the cause of death; and furthermore, an Englishman, Bancroft, has proven the point experimentally by feeding trichosoma eggs to another rodent, the white rat, which regularly died in a few weeks. It is entirely possible, in fact probable, that the prairie dog contracted the disease in these gardens, for the liver of several rats caught here were similarly affected as were also those caught in the Philadelphia General Hospital. From these animals, eggs were secured and are now in course of incubation preparatory to feeding to rats and prairie dogs obtained for this experimental purpose.

It is not possible to determine how many others of our prairie dogs are similarly affected because the eggs are not passed via the intestine, so that examination of the dejecta is useless. It is necessary that the animal die and that the egg incubate at least three months before they can successfully develop in a new host. This was shown by Bancroft for rats, but he does not appear to have considered the possibility of disseminating the disease among wild rats as an exterminative measure. It is this that makes the present finding an interesting and promising one not only against rats but other undesirable rodents. Prairie dogs, for instance, are considered a nuisance in their natural habitats by reason of the burrows they make, and California squirrels, like rats, are susceptible to bubonic plague and so many act as porters of human disease.

HOOKEWORM DISEASE (*Uncinariasis*).

Mention has already been made by Dr. Fox of a paper published from the laboratory showing the distribution of uncinaria (hookworms) among our animals. The following table is reproduced from that article as showing more concisely than words just what animals were affected and to what degree.

Autopsy Number.	Year.	Name of Animal.	Habitat.	Number of	
				Males.	Females.
919	1906	Gray Wolf.....	W. United States.	8	2
1001	1907	Gray Fox.....	W. United States.	34	33
1157	1907	Jaguarundi.....	So. America.....	3	4
1715	1909	Wild Cat (<i>Felis ruffus</i>).....	So. Carolina.....	1	1
2241	1911	Arctic Fox.....	Arctic region.....	5	3
2392	1911	Wild Cat (<i>Felis ruffus</i>).....	So. Carolina.....	0	1
2644	1912	Wild Cat (<i>Felis ruffus</i>).....	So. Carolina.....	7	13
3037	1913	California Hair Seal.....	California.....	56	42
3221	1914	Swift Fox.....	W. United States.	0	4
3293	1914	Wild Cat (<i>Felis ruffus texensis</i>)	No. Mexico and Texas.....	11	10
3297	1914	Wild Cat (<i>Felis ruffus texensis</i>)	No. Mexico and Texas.....	10	14
3298	1914	Wild Cat (<i>Felis ruffus texensis</i>)	No. Mexico and Texas.....	4	3
3306	1914	Red Fox.....	N. Am. E. U. S...	1	1
3561	1915	Wild Cat (<i>Felis ruffus</i>).....	So. Carolina.....	0	1

The results of this study were:—

1. To show that none of the 14 cases showed hookworms of a species affecting man, and that therefore we have nothing to fear from them as transmitters of the disease, particularly the wild cats, which came from a notorious hookworm district.

2. That the hookworm found in the young sea-lion has been described in young seals in the Pribiloff Islands (*Uncinaria lucosi*) and that its finding in these gardens indicates that it probably is present farther down the coast, namely in California. Our seal tanks are doubtless infested with eggs. We have probably had but this one case because there is so little sand in which eggs develop. The recent cementing in the enclosure is a valuable prophylactic measure.

* * * * *

Infected Parasitic Cyst in Phillipine Spotted Deer (*Cervus alfredi*).

In the past years we have found many examples of parasitic cysts, notably *Cysticercus tenuicollis*, among the herbivora, including deer, goats, and camels, but in none could they be considered as concerned in causing the death of the animal. It seems particularly unfortunate that such a valuable animal as the above should have been the first and sole victim of the disease. The lesion, found in the gastro hepatic omentum, contained a small quantity of pus and partly disintegrated membranous walls of a cysticercus. Around it there was a zone of dry but unmistakable peritonitis extending some five or six inches into the peritoneal cavity. This animal had been in the garden but seven weeks, too short a time for the disease to have been acquired here. These cysts can be acquired only by ingesting one of the eggs of the dog tapeworm, *Tænia marginata*. The case teaches us that we should not regard these cysts too lightly and that we should, from this, watch our Canidæ for these tapeworms. A similar warning was sounded in the report of 1913 (page 38) where Gray Wolf No. 3 was noted as passing tapeworm eggs, isolated, treated, cured (1914 Report, page 38) and passed back to exhibition.

* * * * *

A special paragraph seems proper on the arachnoid parasite *Pneumonyssus foxi*, found in the lung of a rhesus macaque (No. 3156) which forms a basis of the two papers heretofore mentioned as being published from the laboratory. The latter one gives the technical diagnosis of a new species, while the former states the case and gives literature on the subject of arachnoid endoparasitism in monkeys and man. The points brought out which are of especial interest to the garden were that

1. Four different species of arachnoid (not counting our own case) have been described from monkeys' lungs,
 - (a) *Pneumotuber macaci* Landois & Hoepke, in lungs

of a single macacus rhesus dying in Breslau where it was kept for bone transplanting purposes.

(b) *Pneumonyssus duttoni* Newstead & Todd, in lungs of eleven monkeys (*Cercopithecus schmidtii*) in the upper Congo.

(c) *Pneumonyssus griffithi* Newstead, in lungs of six monkeys (*Macacus rhesus*) from India, which were killed in England.

(d) *Pneumonyssus simicola* Banks, in lungs of a monkey (*Cyanocephalus* sp?) dying in Java after opium poisoning.

2. The lesions they produce simulate and may be mistaken grossly for tubercles.

3. The disease is not a serious one.

4. Original habitat and mode of transmission are unknown.

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Rhesus macaque No. 156 reported in 1914 as cured of whipworms and passed back to exhibition, continues to show no ova. The worms in this animal† have not been nearly so refractory to treatment as in human cases.

* * * * *

Coccidium bigeminum in Swift Foxes.

In last year's report, mention was made (page 41) of the infection in two foxes, one of which died. The other, which was in isolation, recovered spontaneously, all oöcysts disappeared from the discharges, and the animal has been passed back to exhibition.

* * * * *

Spiroptera incerta in parrots.

Twenty-three new arrivals have been examined without finding parasitic ova in the dejecta.

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† This animal has lately died and shown no whipworms in the intestine.

During the year, 44 animals have shown entozoa as follows: Cestodes, 13; Nematodes, 41; Trematodes, 3. They have not, with few exceptions, been of much importance in the death of the specimens. The interesting exceptions are noted in the paragraphs devoted to the special cases.

Respectfully submitted,

HERBERT FOX, M. D.,
Pathologist.

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Members are admitted to the Garden during the time it is open to the public, which is from 9 A. M. until sunset, every day in the week, including Sunday and have the privilege of consulting the books in the library, subject to the rules and regulations of the Society.

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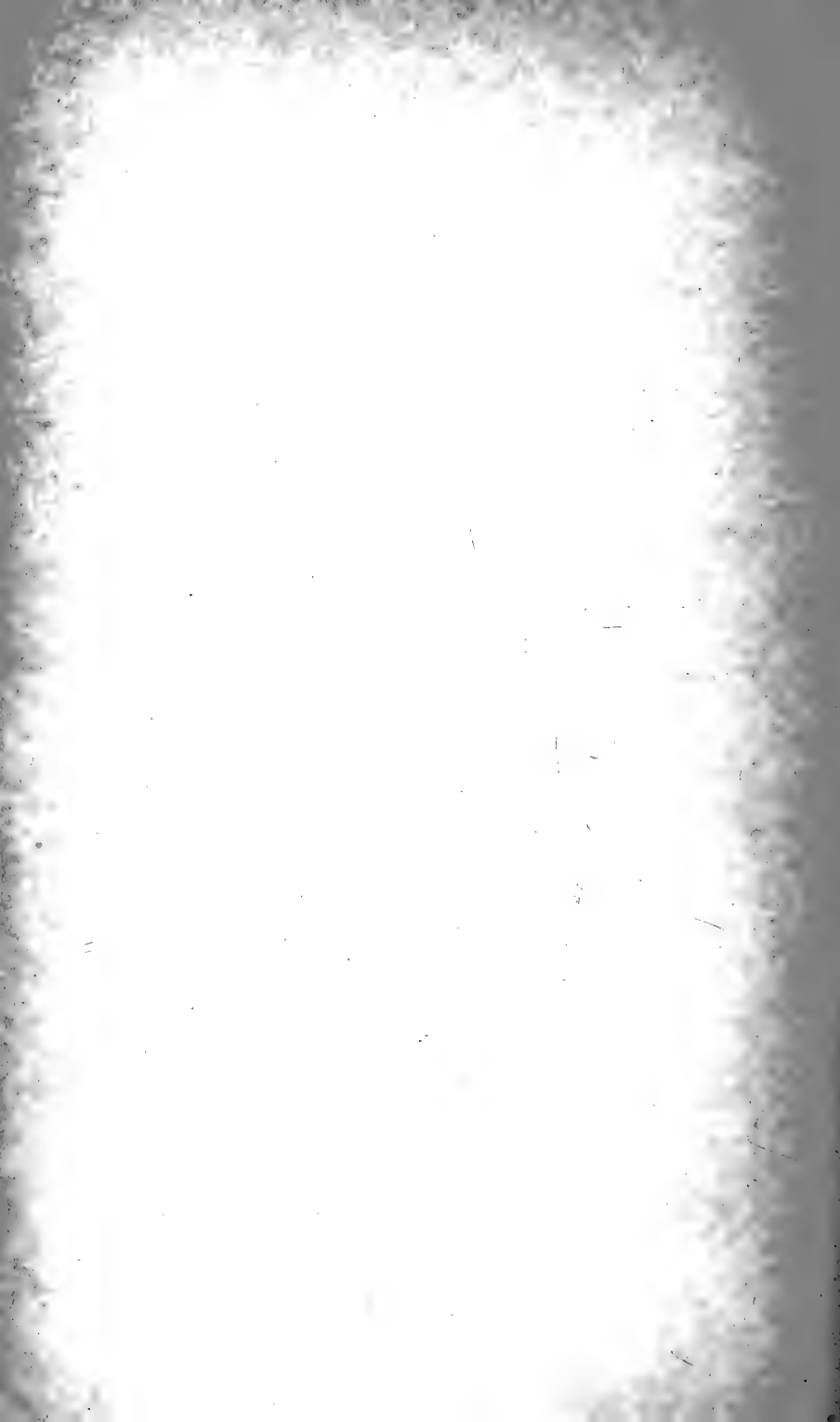
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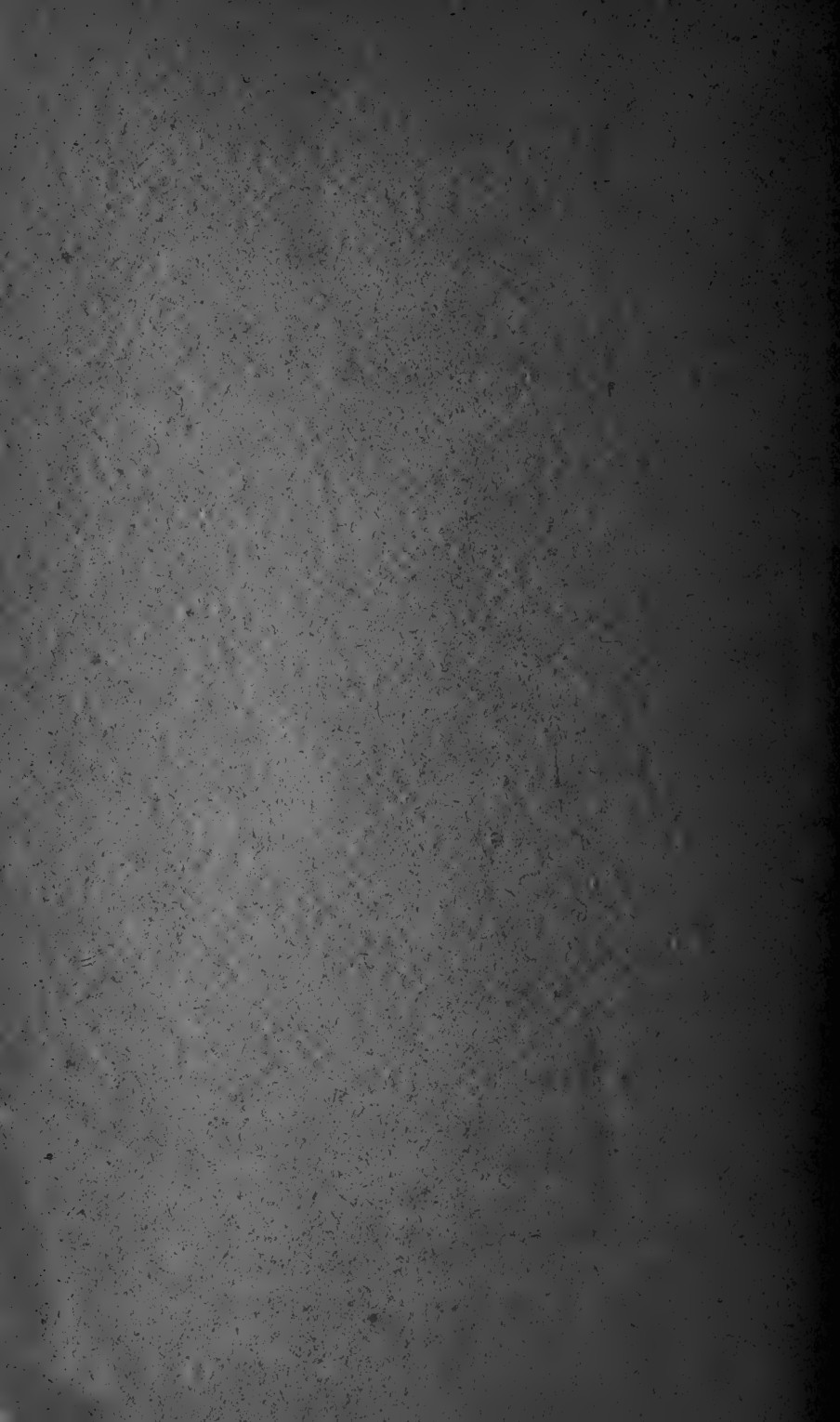
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